

In the Specification

**Please replace the paragraph found on page 5, lines 12-20 of the specification with the following paragraph:**

The subject invention concerns a novel viral vector system for gene therapy based on an insect poxvirus designed to deliver genes for integration and stable, permanent expression in vertebrate cells. In an exemplified embodiment, a recombinant AmEPV vector was constructed that contains heterologous genes under the control of promoters that drive the expression of the heterologous genes in vertebrate cells. The *gfp* gene and the gene encoding G418 resistance were used in an exemplified construct. The recombinant AmEPV was used to infect vertebrate cells and following infection the cells were transferred to media containing G418. Cells expressing both GFP and G418 resistance were obtained. Thus, the vectors of the subject invention can be used to deliver large DNA segments for the engineering of vertebrate cells.

**Please replace the paragraph found on page 8, lines 24-27 of the specification with the following paragraph:**

Figure 10 shows residues shared between poxvirus poly(a) polymerase subunit homologs (SEQ ID NOs. 16, 17, and 75-80). Consensus shows the conservation between all five sequences. Insect consensus shows identity among the four EPV ORFs. AmEPV consensus displays identities between the two AmEPV subunits.

**Please replace the paragraph found on page 9, lines 7-9 of the specification with the following paragraph:**

Figure 12 shows the amino acid sequence of the AmEPV serine protease inhibitor (SEQ ID NO. 21). Amino acid abbreviations are standard. The Kunitz family signature (Prosite PS00280) is shown underlined and italicized from residues 55 to 73.

**Please replace the paragraphs found on page 9, line 12 through page 10, line 22 of the specification with the following paragraphs:**

**SEQ ID NO: 1** is the nucleotide sequence of the gene encoding AmEPV triacylglyceride lipase (AMV133).

**SEQ ID NO: 2** is the nucleotide sequence of the gene encoding AmEPV Cu<sup>++</sup>/Zn<sup>++</sup> superoxide dismutase (SOD) (AMV255).

**SEQ ID NO: 3** is the nucleotide sequence of the gene encoding AmEPV CPD photolyase (AMV025).

**SEQ ID NO: 4** is the nucleotide sequence of the gene encoding AmEPV baculovirus-like inhibitor of apoptosis (IAP) (AMV021).

**SEQ ID NO: 5** is the nucleotide sequence of the gene encoding a first AmEPV poly(A) polymerase small subunit (AMV060).

**SEQ ID NO: 6** is the nucleotide sequence of the gene encoding a second AmEPV poly(A) polymerase small subunit (AMV115).

**SEQ ID NO: 7** is the nucleotide sequence of the gene encoding a first AmEPV DNA polymerase (AMV050).

**SEQ ID NO: 8** is the nucleotide sequence of the gene encoding a second AmEPV DNA polymerase (AMV210).

**SEQ ID NO: 9** is the nucleotide sequence of the gene encoding AmEPV ABC transporter-like protein (AMV130).

**SEQ ID NO: 10** is the nucleotide sequence of the gene encoding AmEPV Kunitz-motif inhibitor (KPI) (AMV007).

**SEQ ID NO: 11** is the nucleotide sequence of the gene encoding AmEPV poly(A) polymerase large subunit (AMV038).

**SEQ ID NO: 12** is the amino acid sequence for the AmEPV triacylglyceride lipase (AMV133).

**SEQ ID NO: 13** is the amino acid sequence for the AmEPV Cu<sup>++</sup>/Zn<sup>++</sup> superoxide dismutase (SOD) (AMV255).

**SEQ ID NO: 14** is the amino acid sequence for the AmEPV CPD photolyase (AMV025).

**SEQ ID NO: 15** is the amino acid sequence for the AmEPV baculovirus-like inhibitor of apoptosis (IAP) (AMV021).

**SEQ ID NO: 16** is the amino acid sequence for the first AmEPV poly(A) polymerase small subunit (AMV060).

**SEQ ID NO: 17** is the amino acid sequence for the second AmEPV poly(A) polymerase small subunit (AMV115).

**SEQ ID NO: 18** is the amino acid sequence for the first AmEPV DNA polymerase (AMV050).

**SEQ ID NO: 19** is the amino acid sequence for the second AmEPV DNA polymerase (AMV210).

**SEQ ID NO: 20** is the amino acid sequence for the AmEPV ABC transporter-like protein (AMV130).

**SEQ ID NO: 21** is the amino acid sequence for the AmEPV Kunitz-motif inhibitor (KPI) (AMV007) (Figure 12).

**SEQ ID NO: 22** is the amino acid sequence for the AmEPV poly(A) polymerase large subunit (AMV038).

**Please add the following paragraphs at page 10, line 24:**

**SEQ ID NO: 28** is the nucleotide sequence and amino acid sequence for an AmEPV enhancing protein (AMVITR10).

**SEQ ID NO: 29** is the nucleotide sequence and amino acid sequence for an AmEPV dUTPase (AMV002).

**SEQ ID NO: 30** is the nucleotide sequence and amino acid sequence for an AmEPV very late transcription factor-2 (VLTF-2) (AMV047).

**SEQ ID NO: 31** is the nucleotide sequence and amino acid sequence for a first AmEPV RNA polymerase (AMV051).

**SEQ ID NO: 32** is the nucleotide sequence and amino acid sequence for a second AmEPV RNA polymerase (AMV054).

**SEQ ID NO: 33** is the nucleotide sequence and amino acid sequence for an AmEPV DNA helicase (AMV059).

**SEQ ID NO: 34** is the nucleotide sequence and amino acid sequence for an AmEPV 30K virion protein (AMV061).

**SEQ ID NO: 35** is the nucleotide sequence and amino acid sequence for a third AmEPV RNA polymerase (AMV066).

**SEQ ID NO: 36** is the nucleotide sequence and amino acid sequence for an AmEPV protein tyrosine phosphatase (AMV078).

**SEQ ID NO: 37** is the nucleotide sequence and amino acid sequence for an AmEPV thioredoxin protein (AMV079).

**SEQ ID NO: 38** is the nucleotide sequence and amino acid sequence for an AmEPV RNA helicase (AMV081).

**SEQ ID NO: 39** is the nucleotide sequence and amino acid sequence for a first AmEPV serine/threonine protein kinase (AMV084).

**SEQ ID NO: 40** is the nucleotide sequence and amino acid sequence for an AmEPV NTPase (AMV087).

**SEQ ID NO: 41** is the nucleotide sequence and amino acid sequence for an AmEPV transcription factor (AMV091).

**SEQ ID NO: 42** is the nucleotide sequence and amino acid sequence for an AmEPV mRNA capping small subunit (AMV093).

**SEQ ID NO: 43** is the nucleotide sequence and amino acid sequence for an AmEPV very early transcription factor-large protein (VETF-L) (AMV105).

**SEQ ID NO: 44** is the nucleotide sequence and amino acid sequence for an AmEPV redox protein (AMV114).

**SEQ ID NO: 45** is the nucleotide sequence and amino acid sequence for an AmEPV rifampicin resistance protein (AMV122).

**SEQ ID NO: 46** is the nucleotide sequence and amino acid sequence for an AmEPV mRNA capping large subunit (AMV135).

**SEQ ID NO: 47** is the nucleotide sequence and amino acid sequence for an AmEPV P4a core protein (AMV139).

**SEQ ID NO: 48** is the nucleotide sequence and amino acid sequence for an AmEPV P4b core protein (AMV147).

**SEQ ID NO: 49** is the nucleotide sequence and amino acid sequence for an AmEPV ATP/GTP binding protein (AMV150).

**SEQ ID NO: 50** is the nucleotide sequence and amino acid sequence for a second AmEPV serine/threonine protein kinase (AMV153).

**SEQ ID NO: 51** is the nucleotide sequence and amino acid sequence for a fourth AmEPV RNA polymerase (AMV166).

**SEQ ID NO: 52** is the nucleotide sequence and amino acid sequence for an AmEPV polyubiquitin protein (AMV167).

**SEQ ID NO: 53** is the nucleotide sequence and amino acid sequence for AmEPV very small transcription factor-short protein (VETF-s) (AMV174).

**SEQ ID NO: 54** is the nucleotide sequence and amino acid sequence for AmEPV core protein (AMV181).

**SEQ ID NO: 55** is the nucleotide sequence and amino acid sequence for an AmEPV nucleoside triphosphate phosphorylase I (NPH I) (AMV192).

**SEQ ID NO: 56** is the nucleotide sequence and amino acid sequence for an AmEPV apoptosis-associated protein (AMV193).

**SEQ ID NO: 57** is the nucleotide sequence and amino acid sequence for a third AmEPV serine/threonine protein kinase (AMV197).

**SEQ ID NO: 58** is the nucleotide sequence and amino acid sequence for an AmEPV NAD<sup>+</sup> dependent DNA ligase (AMV199).

**SEQ ID NO: 59** is the nucleotide sequence and amino acid sequence for an AmEPV very late transcription factor-3 (VLTF-3) (AMV205).

**SEQ ID NO: 60** is the nucleotide sequence and amino acid sequence for a fifth AmEPV RNA polymerase (AMV221).

**SEQ ID NO: 61** is the nucleotide sequence and amino acid sequence for an AmEPV  $\text{Ca}^{2+}$  binding protein (AMV228).

**SEQ ID NO: 62** is the nucleotide sequence and amino acid sequence for a sixth AmEPV RNA polymerase (AMV230).

**SEQ ID NO: 63** is the nucleotide sequence and amino acid sequence for an AmEPV DNA glycosylase (AMV231).

**SEQ ID NO: 64** is the nucleotide sequence and amino acid sequence for an AmEPV protein phosphatase (AMV234).

**SEQ ID NO: 65** is the nucleotide sequence and amino acid sequence for an AmEPV phosphotyrosine kinase (AMV246).

**SEQ ID NO: 66** is the nucleotide sequence and amino acid sequence for an AmEPV glycosyl transferase (AMV248).

**SEQ ID NO: 67** is the nucleotide sequence and amino acid sequence for an AmEPV metalloprotease (AMV256).

**SEQ ID NO: 68** is the nucleotide sequence and amino acid sequence for an AmEPV myristylated membrane protein (AMV217).

**SEQ ID NO: 69** is the nucleotide sequence and amino acid sequence for an AmEPV NTP pyrophosphohydrolase (AMV058).

**SEQ ID NO: 70** is the nucleotide sequence and amino acid sequence for an AmEPV DNA topoisomerase (AMV052).

**SEQ ID NO: 71** is the nucleotide sequence and amino acid sequence for a first AmEPV membrane protein (AMV118).

**SEQ ID NO: 72** is the nucleotide sequence and amino acid sequence for a second AmEPV membrane protein (AMV232).

**SEQ ID NO: 73** is the nucleotide sequence and amino acid sequence for a third AmEPV membrane protein (AMV243).

**SEQ ID NO: 74** is the nucleotide sequence and amino acid sequence for a fourth AmEPV membrane protein (AMV035).

**SEQ ID NOs: 75-80** are consensus sequences within poxvirus poly(a) polymerase subunit homologs (Figure 10).